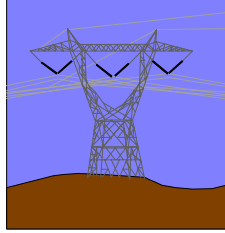
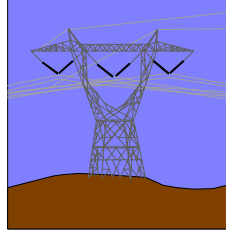


Programs in Review

Transmission Program Level Costs for 2004-2006

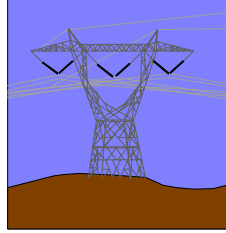
"The Value of Transmission."

BONNEVILLE POWER ADMINISTRATION



July 2002 Meetings

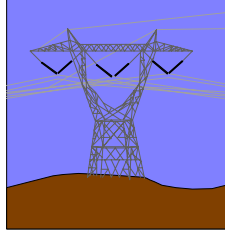
July 17th, 2002	Idaho Falls	TBL Representative: Kevin Ward 1:00 to 5:00 p.m.
July 18th, 2002	Spokane	TBL Account Executive: Sally Long 8:30 a.m. to 12:30 p.m.
July 19th, 2002	Portland	TBL Representative: Kevin Ward 8:30 a.m. to 12:30 p.m.
July 24th, 2002	Kennewick	TBL Account Executive: Brian Altman 1:00 to 5:00 p.m.
July 25th, 2002	Tacoma	TBL Account Executive: Bob Lahmann 8:30 a.m. to 12:30 p.m.



Agenda

10 min.	**Welcome and Purpose of the Meeting** – AE
20 min.	**History of TBL Costs** – Alan Courts, TBL Vice-President for Engineering and Technical Services
1 hour	**Infrastructure** - Vickie VanZandt, TBL Vice-President for Operations and Planning
15 min.	**Break**
1 hour	**The Future of TBL O&M** - Fred Johnson, TBL Vice-President for Field Services
1 hour	**Overall Program Levels –** Chuck Meyer, TBL Vice-President For Marketing and Sales
10 min.	**Closing Remarks -** AE

Note: Time will be provided after each session for Q&A.



Programs In Review

History of TBL Programs and Costs FY 1992 to Present

"Where we have been"

Alan Courts

Vice President for Engineering and Technical Services

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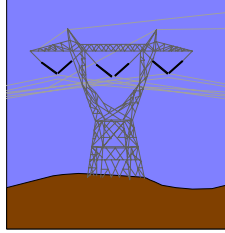
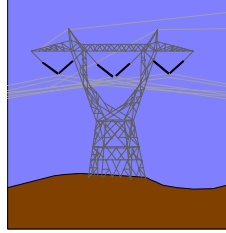


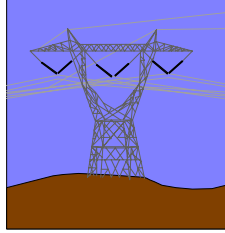
What Has Driven Changes?

- **1992** – Energy Policy Act
- **1996** – Western system outages/reliability standards strengthened. Watershed events – summer 1996
- **2000-01** Western electricity crisis
- **Today** – New era



What Changed For TBL

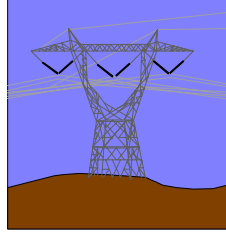
- Nature of the work
- System needs new additions
- Stressed and aging system
- Aging workforce
- Electric utility industry is changing



This Is What We Did...

- **1992 to 1998** – Capital Program dropped by 66% and staff levels dropped by 36%
- **1999** – Pushed system to operating at or near capacity
- **2002 – 2003** rate case settlement recognized increased investment and spending needed to maintain reliable system
- **Today** – No substantial transmission infrastructure built since 1987, despite NW growth
- **Today** – Grid is stressed to its limit

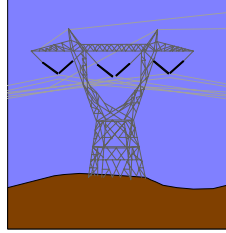
BONNEVILLE POWER ADMINISTRATION



Our Direction Remains Constant

- **1999 program review** – System margin gone
- **FY 2002-03** –TBL embarked on major infrastructure projects needed
  - Also, focused on Reliability Centered Maintenance
- **FY 2003-06** – Focus on reliability, safety, adequacy and availability, while controlling costs

BONNEVILLE POWER ADMINISTRATION



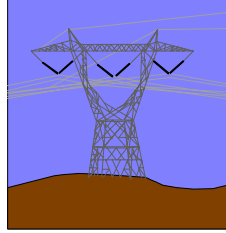
Programs in Review

Capital Program

Vickie VanZandt

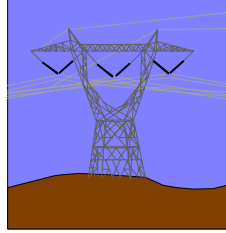
Vice President Operations & Planning

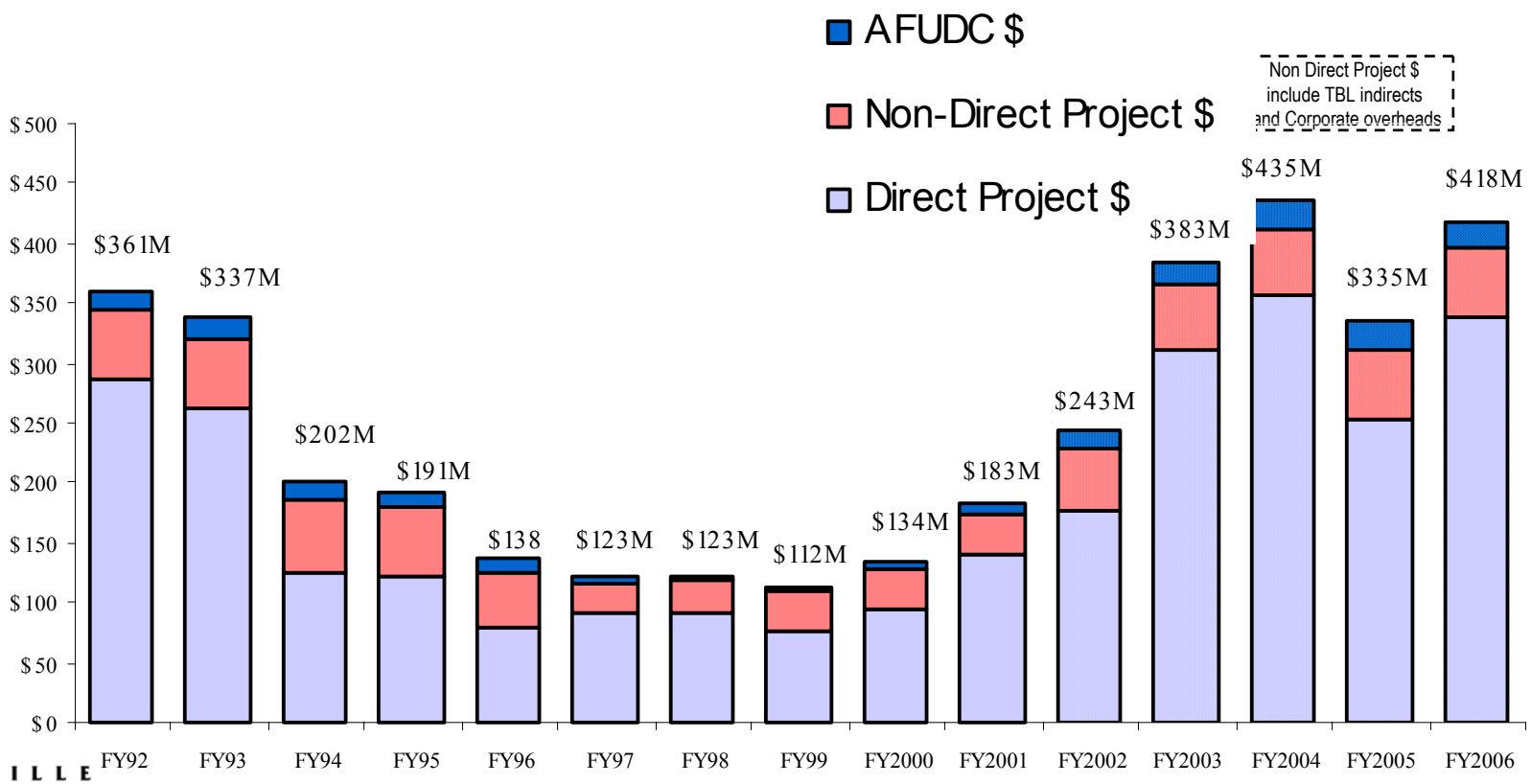
Key Drivers for the Capital Program



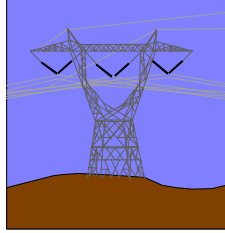
- Replace aging facilities
  - Availability
  - Safety
  - Economics
- Infrastructure Program
  - Keep the lights on –reinforce the system to comply with national reliability standards
  - Interconnect needed new generation
  - Remove constraints that limit economic trade and our ability to maintain the system

TBL Capital Projects
Historical & Future Trend



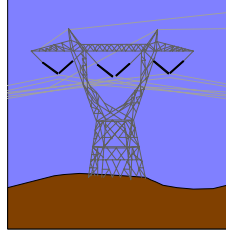


FY 2002-2004 direct project costs include projects funded by alternative sources



Infrastructure
Where are we?

- **Current Situation**
  - Loads growing steadily at 1.8% per year
  - Little new transmission since 1987
- **Objectives of BPA Infrastructure Plan**
  - Keep the lights on — reinforce the system to comply with national reliability standards
  - Interconnect needed new generation
  - Availability
  - Remove constraints that limit economic trade & our ability to maintain the system

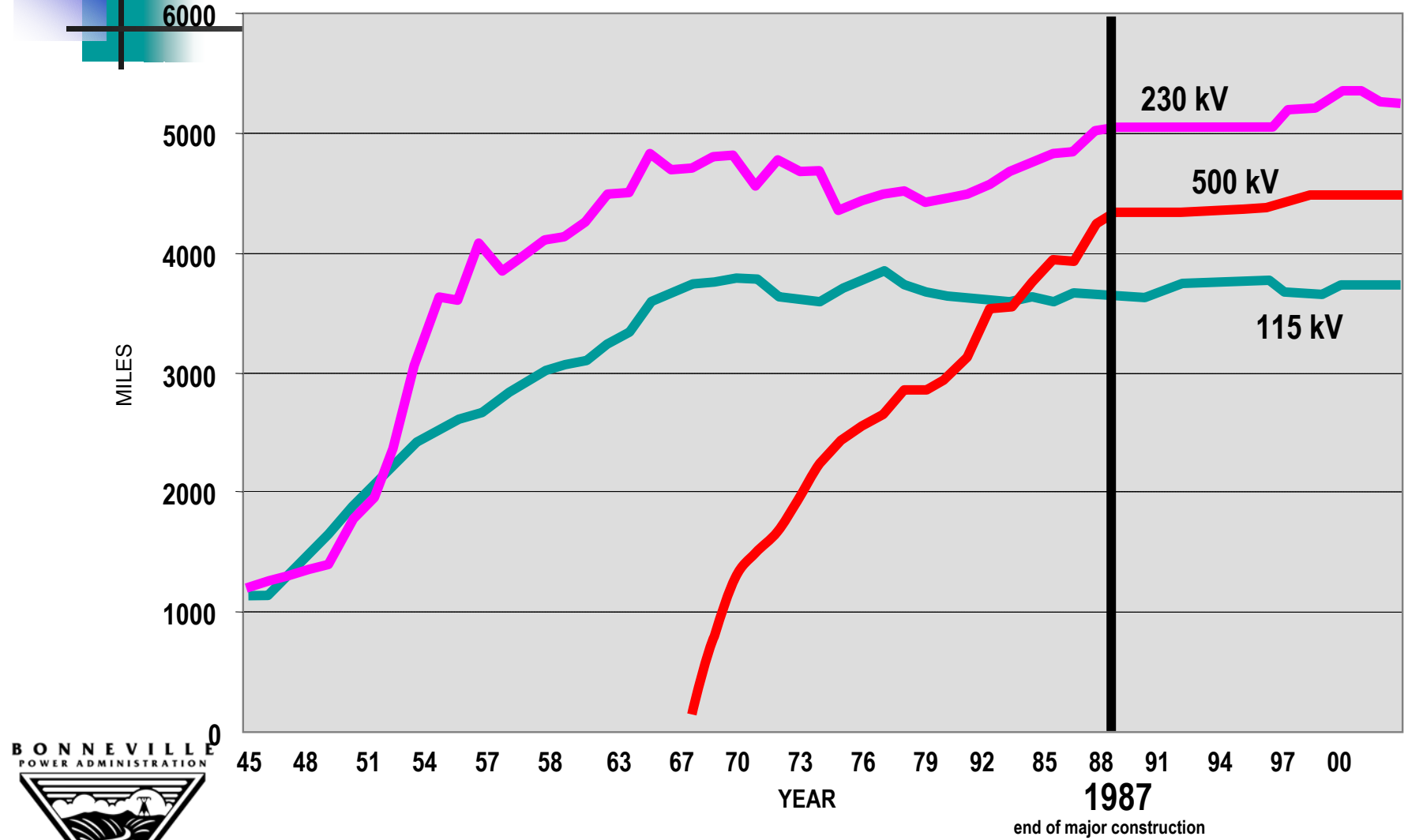


Infrastructure
How did we get here?

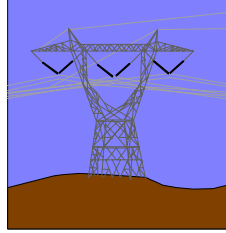
- We've used controls and communications to safely use the margin that was built in, but we've taken this about as far as we can
- Deregulation has created different users and results in unusual generation patterns
  - Reliability criteria changes due to market pressures
  - Gaming occurs which is detrimental to system
- The western interconnection's energy crisis isn't just a generation issue -- it's also the transmission system needed to move it around
- California Market conditions are stressing the interties and existing congested paths

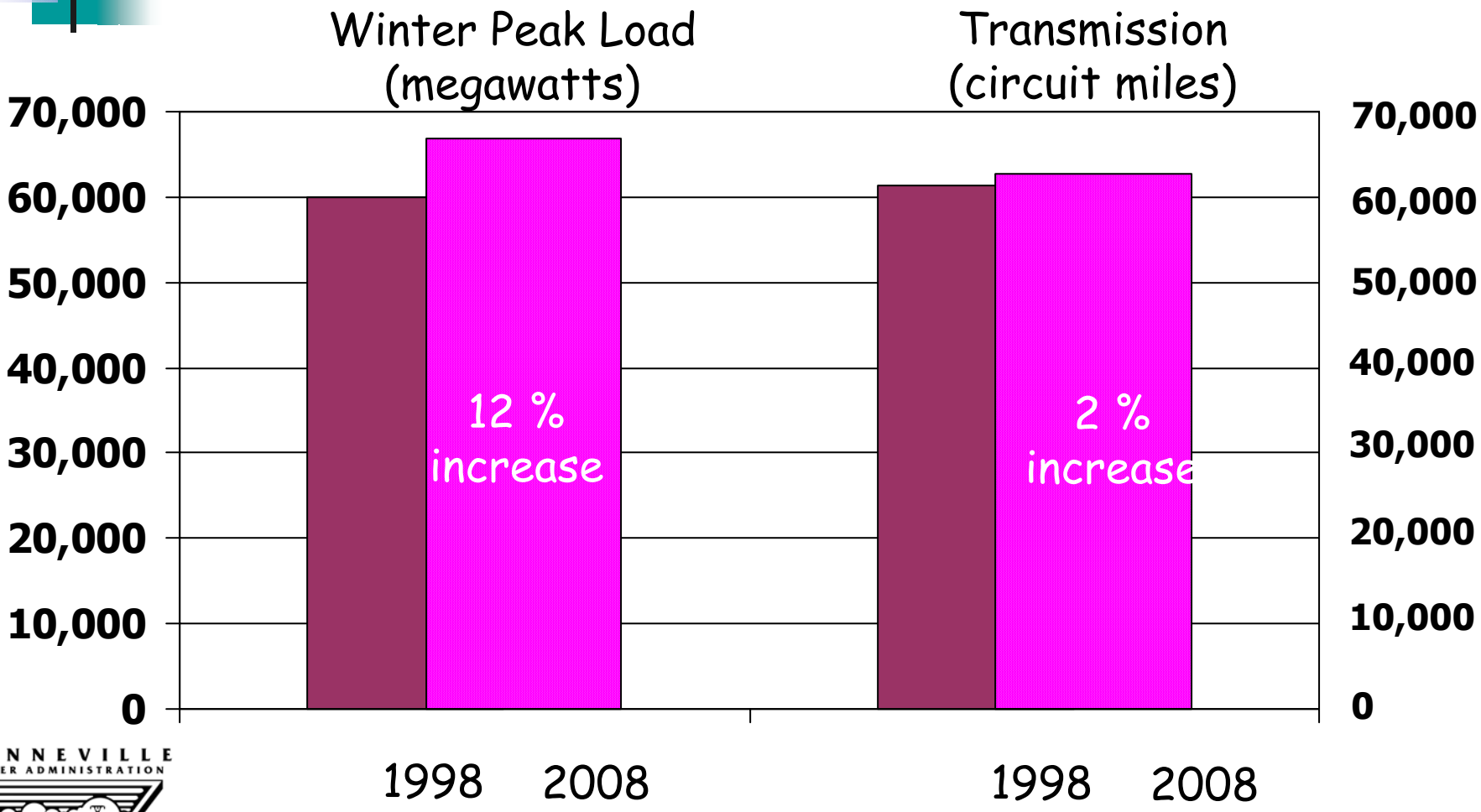
Transmission Line Construction

Operating Circuit Miles



Infrastructure Transmission Needs

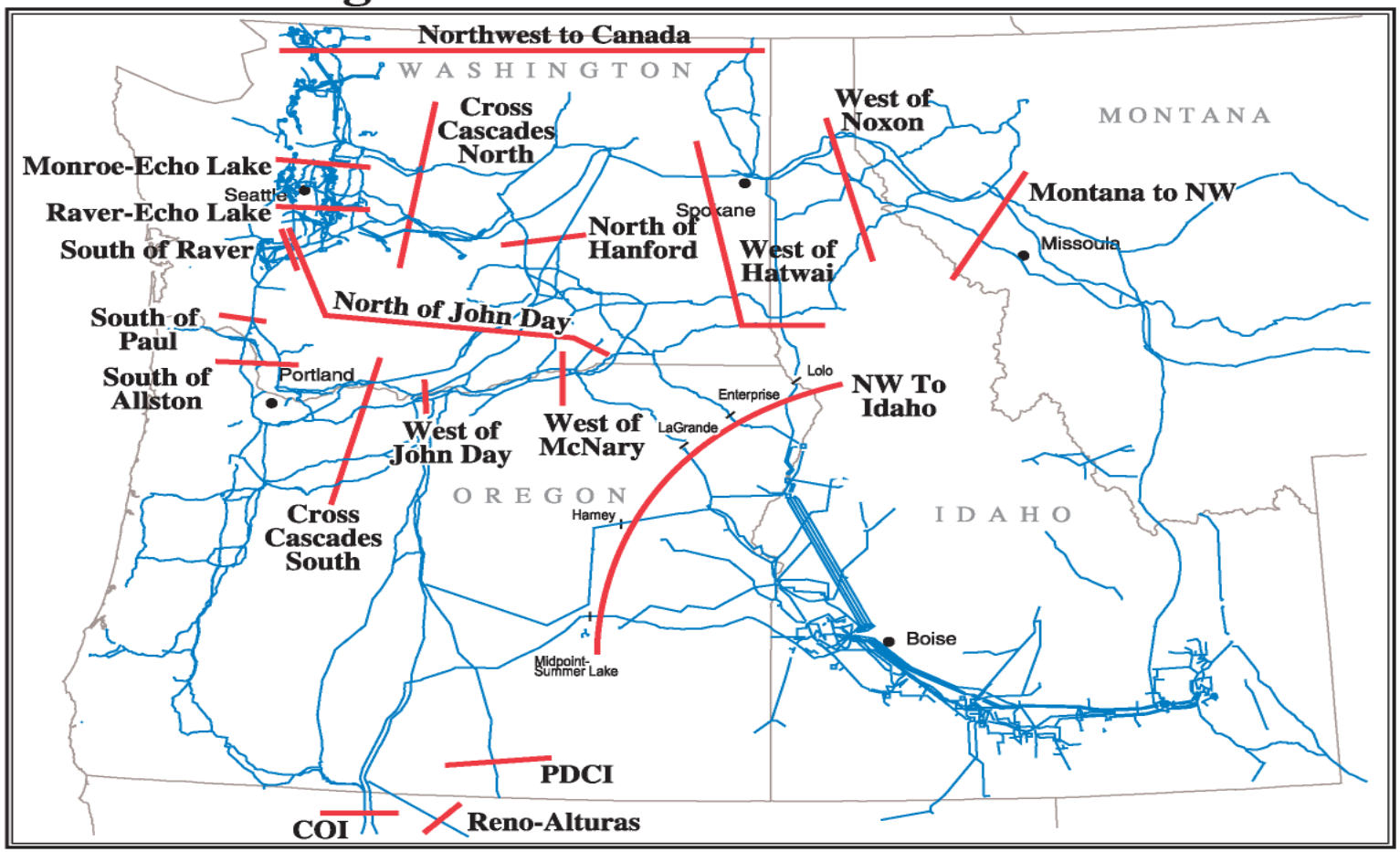




BONNEVILLE POWER ADMINISTRATION

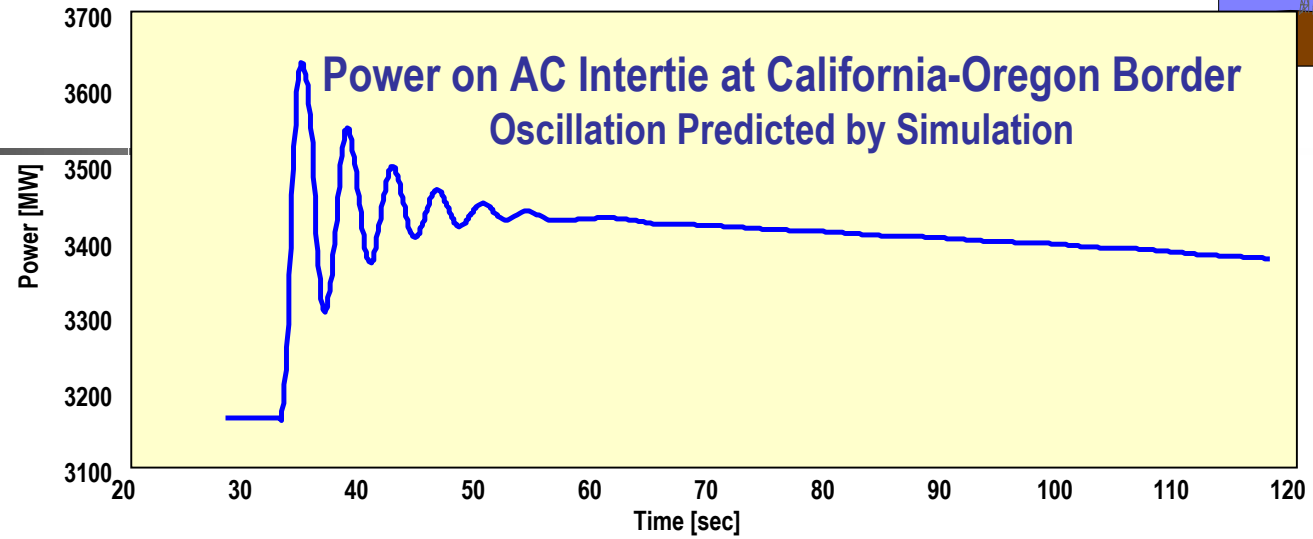
Existing & Proposed NW Constrained Paths

Figure 1: NW Constrained Paths



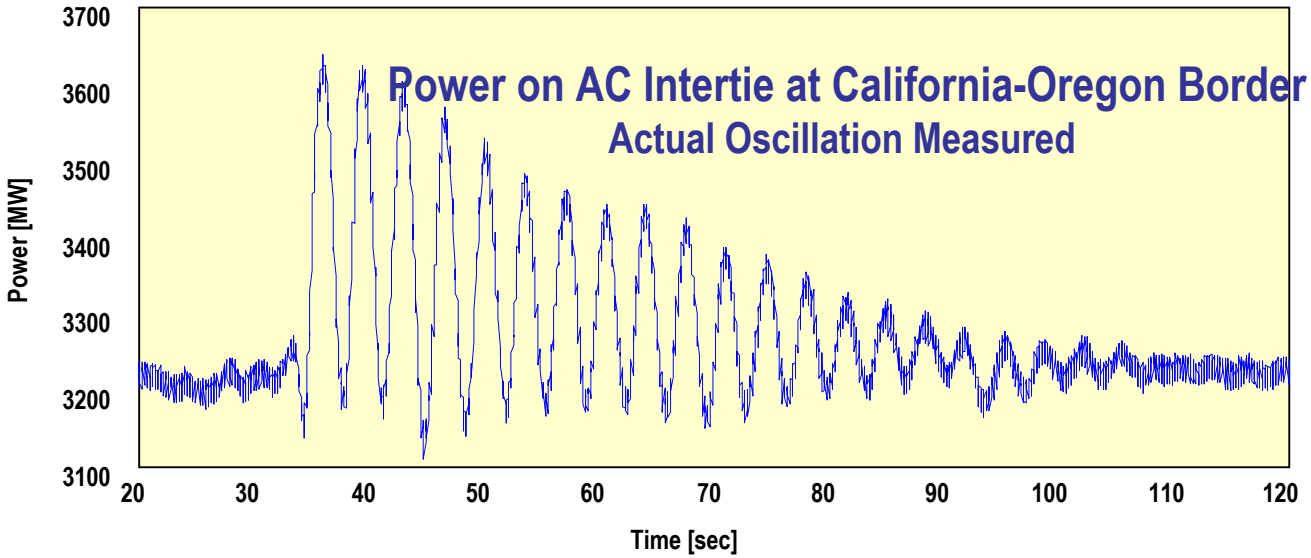
This Is What We Thought Would Happen

(Simulation)

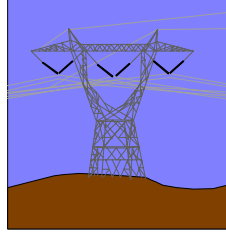


This Is What Actually Happened

August 4, 2000 Oscillation - Alberta Separation



BONNEVILLE POWER ADMINISTRATION

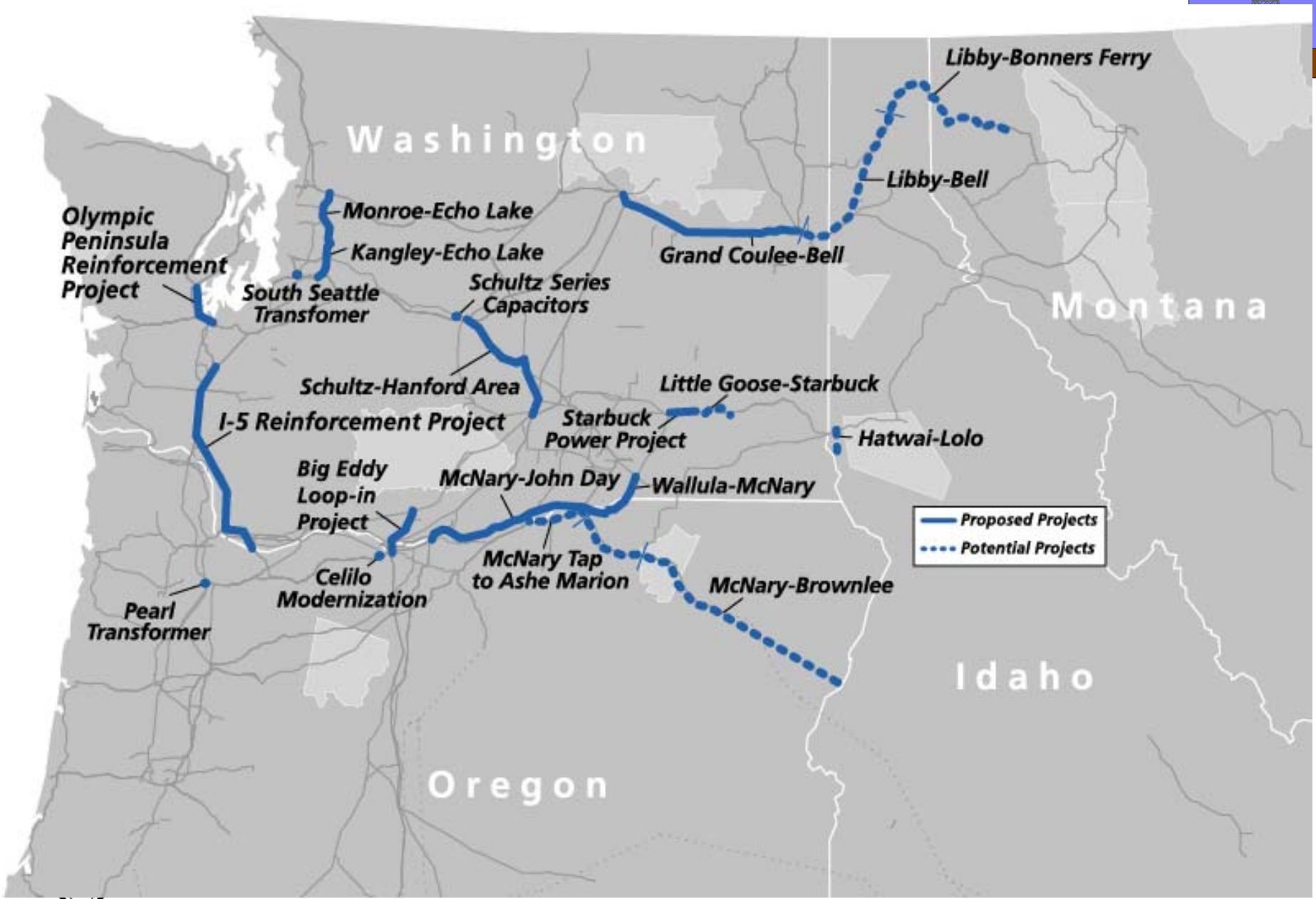


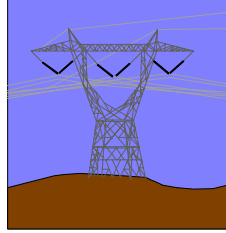
Infrastructure Solution

The proposed projects:

- **Reinforce the load centers**
- **Integrate needed generation**
  - Depending on which plants are built -
  - Can integrate between 8000 to 12000 MW
- **Relieve crippling congestion**
  - Focus on NW constrained paths
  - Reduces price volatility
- **Put some reliability margin back into the grid**
  - Reduce vulnerability to cascading electrical outages
  - Allow outages for maintenance

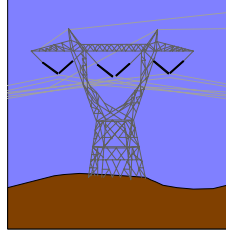
INFRASTRUCTURE PROJECTS G-20





Area & Customer Service

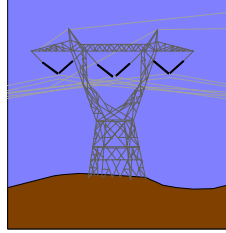
- Driven by customer needs –improve reliability to customers at the edges of the grid
- Under run in FY00 and FY01 due to contractual issues
- Expect to complete targeted program in FY02
- Difficult to forecast for out years



TBL Capital Upgrades & Additions

- Addition/replacement of Remedial Action Schemes (RAS) to integrate new generation and relief constrained paths
- Completion of fiber optics facilities to provide bandwidth capacity and high speed data transfers
- New systems at Control Centers for both marketing & operational functions

BONNEVILLE POWER ADMINISTRATION



System Replacement Program

- Completed and planned system replacements based on 10-year Replacement Plan 2001-2015 (1999)
- Replacement plan based on vintage, maintenance cost, and availability of spare parts for transformers, breakers, bushings, ct/pts, communications/control equipment, and wood poles
- Annual replacement budget includes $10 million for emergency

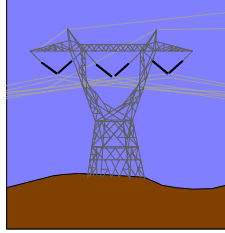


Photo – damaged conductor

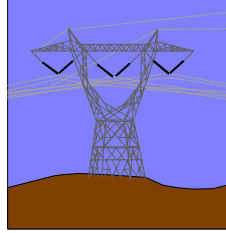
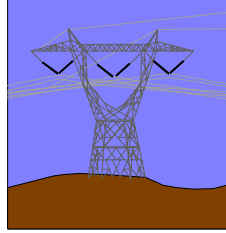


Photo – failed bushing



Wood Pole Replacement Strategy

- Need to replace 2500 poles per year in order to replace problem poles (30,000) by 2015 (butt tested)
- An average replacement of 1600 per year limited by resources and outages required
- Program costs are about $4 million in 2002 and expected to continue through 2015

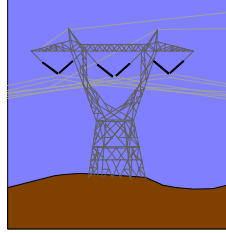
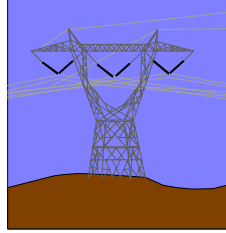


Photo- wood pole replacement

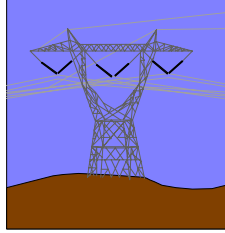


Pole Vintage Chart

	Cedar Poles Service Years					Fir Poles Service Years				
Year	< 40	41-50	51-60	61-70	70>	< 40	41-50	51-60	61-70	70>
2002	981	7,639	10,336	4,827	30	3,611	5,891	1,042	0	0
2010	573	605	10,056	12,549	30	1,665	2,082	5,961	836	0
2015	445	299	1,536	14,576	6,957	1,493	895	5,744	2,409	3

Average life of cedar pole: 60 years

Average life of fir pole; 55 years



Breakers Replacement Strategy

- Propose to replace 60 breakers per year for both fault duty and maintenance
- Priority on those prone to violent failure and high maintenance cost (two pressure gas puffer and air blast breakers)
- Life extension measures applied as needed

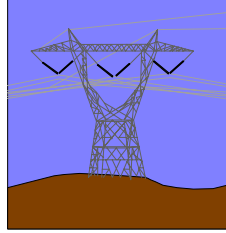
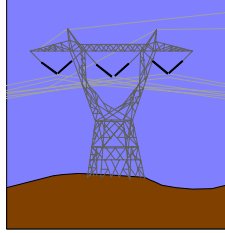


Photo – failed breaker

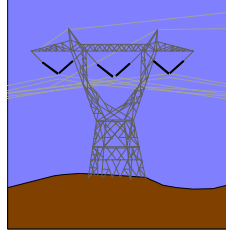


Breaker Vintage Chart

Voltage	>50 Yrs	>30 Yrs	>15 Yrs	>5 Yrs	Repl Costs per PCB
15	25	102	70	93	$45 K
34.5	1	5	22	17	$71 K
69	2	21	27	54	$85 K
115	0	123	138	272	$150 K
230	0	95	113	306	$250 K
500	0	5	67	219	$600 K

NOTE: Average Breaker Life: 30 Years

BONNEVILLE POWER ADMINISTRATION



Summary

- Capital Program in four categories
  - Main grid
  - Local service
  - Upgrades & additions
  - Replacements
- Five main purposes
  - Reinforce load centers
  - Integrate needed new generation
  - Relieve crippling congestion
  - Keep the lights on
  - Business systems (E-Tagging, OASIS, billing)

BONNEVILLE POWER ADMINISTRATION